Serial Number 09/808,055

AMENDMENTS TO CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Canceled)

2. (Canceled)

3. (Canceled)

4. (Canceled)

5. (Previously Presented) The method for active noise cancellation using independent component analysis which is characterized by controlling active noise by learning each adaptive filter coefficient according to the following expression in an active noise cancellation system, wherein the mixture x_i of signal and noise that forms the primary input and noise x_2 that forms the secondary input is related by the following expression:

$$\Delta w_{ii}(0) \propto 1 / w_{ii}(0) - \varphi(u_i(t))x_i(t),$$
$$\Delta w_{ii}(k) \propto -\varphi(u_i(t))x_i(t-k),$$

$$\Delta w_{ij}(k) \propto -\varphi(u_i(t))u_j(t-k), \qquad \varphi(_i(t)) = \frac{\dfrac{\partial P(u_i(t))}{\partial u_i(t)}}{P(u_i(t))}$$

wherein, the said $w_{ii}(0)$ is a zero delay coefficient in a direct filter, $w_{ii}(k)$, $k \neq 0$ is a delay coefficient in a direct filter, $w_{ij}(k)$, $i \neq j$ is a coefficient in a feedback cross filter, Δ before

each coefficient is a change amount of the corresponding coefficient, t is a sample index, and $P(u_i(t))$ approximates the probability density function of estimated source signal $u_i(t)$.

6. (Previously Presented) The method for active noise cancellation using independent component analysis according to claim 5, which is characterized by obtaining the said $u_i(t)$ by the following expression:

$$u_1(t) = \sum_{k=0}^{K} w_{11}(k)x_1(t-k) + \sum_{k=1}^{K} w_{12}(k)u_2(t-k),$$

$$u_2(t) = \sum_{k=0}^{K} w_{22}(k)x_2(t-k)$$

7. (Previously Presented) The method for active noise cancellation using independent component analysis according to claim 5, wherein a signal cancellation range corresponding to active noise is extended for the system which acquires many noise signals or mixtures of signal and noise by increasing the number of inputs or outputs of the said active noise cancellation system.